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Before the
FEDERAL COMMUNICATIONS COMMISSION
Washington, D.C. 20554

OCT 16 1991

Federal Communications Commission
Office of the Secretary

In re Petition for Rulemaking of

TRW, Inc.

to Amend the Commission's Rules
to Allocate Spectrum for, and to
Establish Other Rules and Policies
Pertaining to, Satellite Systems in
the RDSS Bands

File No. RM-7773

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COMMENTS OF
CONSTELLATION COMMUNICATIONS, INC.

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October 16, 1991

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SUMMARY

In these Comments, Constellation Communications, Inc. supports the Petition for Rulemaking of TRW, Inc. because it is compatible with the similar petition of Constellation to authorize multiple low earth orbit ("LEO") satellite systems in the bands allocated to the radiodetermination satellite service ("RDSS"). CONSTELLATION believes the Commission must reaffirm its commitment to develop the RDSS bands by expeditiously licensing all the proposed LEO system applicants on file before the Commission.

Adhering to CONSTELLATION's proposed approach, which is similar to TRW's approach, is the only means for the Commission to fulfill its multiple entry policy in the RDSS bands. CONSTELLATION submits that the Commission should promptly establish a parallel rulemaking and application processing proceeding to authorize the pending LEO systems in the current RDSS bands. The outstanding issues concerning these applications can and should be resolved using the Commission's existing RDSS policies, together with the minimum adjustments needed to accommodate the proposed LEO systems. This approach will permit the most expeditious resolution of outstanding questions and provide the public with the benefits possible through LEO technology.

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COMMENTS OF
CONSTELLATION COMMUNICATIONS, INC.

Constellation Communications, Inc. ("CONSTELLATION"),
by its attorneys, hereby submits its comments in support of the
Petition for Rulemaking filed by TRW, Inc. ("TRW") on July 8,
1991 in the matter captioned above.^{1/}

TRW's petition is associated with the applications it
filed on June 3, 1991 for authority to construct a
non-geostationary satellite system in the 1610-1626.5 and
2483.5-2500 MHz frequency bands allocated to the radio
determination satellite service ("RDSS"). CONSTELLATION also
filed applications for a low earth orbit ("LEO") RDSS system,
as well as an associated petition for rulemaking (File No.
RM-7771).

^{1/} Public Notice of this petition was given by the Commission
on August 13, 1991 (Report No. 1855).

The TRW and Constellation petitions are quite similar in their approaches to licensing non-geostationary satellite systems in the RDSS bands. Taken together, CONSTELLATION believes that the Commission is in a solid position to promptly proceed with the licensing of LEO systems in the RDSS bands through a parallel rulemaking and application processing proceeding similar to the approach taken in RDSS and other satellite services.

A. THE POLICIES PROPOSED IN THE TRW AND CONSTELLATION PETITIONS WILL ENABLE THE COMMISSION TO REAFFIRM ITS COMMITMENT TO DEVELOP THE RADIODETERMINATION SATELLITE SERVICE

Five non-geostationary RDSS systems are currently pending in applications filed with the Commission.^{2/} Two have already been accepted for filing.^{3/} The record in that proceeding to date has established the public interest in and potential market demand for RDSS services. These applications contain extensive market studies of the potential demand for

^{2/} In addition to CONSTELLATION and TRW, applications have been filed by Ellipsat Corporation ("Ellipsat"), Loral Cellular Systems, Corp. ("Loral"), and Motorola Satellite Communications, Inc. ("Motorola").

^{3/} By Public Notice of April 1, 1991, (Report No. DS-1068), the Commission accepted for filing the LEO applications of Ellipsat and Motorola, and established a cut-off date of June 3, 1991 for the filing of other applications to be considered together with these applications.

LEO satellite systems in the RDSS bands. In particular, the application for CONSTELLATION's ARIES™ system, the application for Motorola's Iridium system and the application of Loral for the Globalstar system demonstrate strong demand for RDSS services. CONSTELLATION submits that this evidence proves the viability of competitive LEO systems in the RDSS bands and the need for the Commission to encourage the development of these technologically innovative systems under its current multiple entry RDSS licensing policies.

CONSTELLATION submits that the pending applications and rulemaking petitions provide the basis for the Commission to move forward promptly with licensing LEO satellite systems. CONSTELLATION urges the Commission to adopt TRW's suggestion that the Commission advance the "twin goals of preserving and revitalizing the RDSS service."^{4/} CONSTELLATION submits that licensing of low earth orbit satellite systems, such as the ARIES™ system, will best fulfill these goals.

B. THE COMMISSION MUST ADHERE TO ITS MULTIPLE ENTRY POLICY IN THE RDSS BANDS.

The Commission's multiple entry policy is based on the conclusion that multiple licensees will promote price

^{4/} Reply Comments of TRW, Inc. to Applications of Motorola Satellite Communications, Inc. (File No. 9-DSS-P-91(87) and CSS-91-010) and Ellipsat Corporation (File No. 11-DSS-P-91(6)) at 7. (July 3, 1991).

competition and innovation. Although some parties in the current application proceedings suggest a departure from this policy, CONSTELLATION proposes that the most prudent course for the Commission to follow is to support the multiple entry policies that have worked well in previous proceedings. With multiple systems authorized in a band, there is no need for the Commission to involve itself in the technical details of whether and how well a satellite system will work in practice. In a competitive market with multiple entry, ill-conceived systems, and those which take unnecessarily risky approaches, will be filtered out by the investment community. Multiple entry also will avoid many of the problems that have occurred in the mobile satellite service proceeding in the upper half of the MSS L-band^{5/} and should permit the prompt introduction of service while promoting competitive offerings. The alternative, licensing only one service provider, would require the imposition of an extremely high standard that all outstanding technical, economic, legal and regulatory questions be fully investigated before the Commission can depart from its current multiple entry satellite policies that favor the

^{5/} Amendment of Parts 2, 22 and 25 of the Commission's Rules to Allocate Spectrum for and to Establish Other Rules and Policies Pertaining to the Mobile Satellite Service for the Provision of Various Common Carrier Services, Gen. Docket 84-1234, Tentative Decision (Aug. 2, 1991).

authorization of all of the LEO applications. Moreover, the cost and delay associated with the need to analyze the pending applications to select who best meets such a higher licensing standard will be prohibitive and cripple the attempts to initiate service to the public. Consequently, CONSTELLATION believes that the Commission must license competitive offerings of LEO services even if this requires pending applicants to modify their proposals in order to accommodate other users.

C. THE COMMISSION SHOULD ADAPT ITS EXISTING RDSS RULES TO PROCESS THE PENDING LEO APPLICATIONS

In 1986, the Commission established its processing rules for the RDSS service.^{6/} These rules were designed to allow the innovative and emerging RDSS service to evolve. There are four policies that underlie these rules. The first is multiple entry. The Commission indicated in the initial RDSS Licensing Order that multiple entry would "benefit the public by allowing competition in the provision of RDSS services."^{7/} Furthermore, it concluded that while technical efficiency is a desirable goal, "the benefits of competition, including continued innovation will be best provided by

^{6/} See Second Report and Order, 104 FCC 2d 650 (1986) ("Licensing Order").

^{7/} Id. at 653.

independently licensed multiple systems."^{8/} The second is minimal technical parameters for RDSS licensees and a requirement that all RDSS permittees coordinate any technical differences in their systems.^{9/} The Commission believed that this would promote compatible multiple entry and at the same time allow the technology to develop. The third is minimal financial qualifications that allow applicants only to demonstrate that sufficient funds are or will be available to meet the costs of constructing and launching the system and operating it for one year.^{10/} This standard is equivalent to that applied in other satellite services where the Commission encourages new entry (e.g. separate systems and direct broadcast satellite) rather than the very stringent requirements applied in the domestic fixed satellite service. The Commission chose not to impose strict financial requirements because RDSS was a new, innovative and as yet unproven service. Fourth, all licenses in the RDSS bands are required to provide radiodetermination services, and may include two-way messaging as an inherent, albeit ancillary, component of RDSS.^{11/}

^{8/} Id. at 654.

^{9/} Id. at 661.

^{10/} Id. at 664.

^{11/} See 47 C.F.R. § 25.392(d).

These policies are directly applicable to any system operating in the RDSS bands, whether in geostationary or low earth orbit, that proposes to provide competitive and compatible radiodetermination services to the public. Like GEO RDSS service, compatible low earth orbit systems involve new and innovative technology being marketed to an untested market. This demands a flexible and responsive regulatory environment.

CONSTELLATION urges the Commission to apply these existing RDSS policies to the pending applications in the RDSS bands. This will allow the prompt processing of the pending applications and insure that service is expeditiously provided to the public. The Commission should also initiate a parallel rulemaking proceeding to adjust basic technical criteria for low earth orbit systems that will enhance and promote the Commission's existing RDSS policies and resolve any conflicts between applications in order to allow multiple LEO systems in the RDSS bands to be granted promptly. More specifically, CONSTELLATION makes the following proposals for the Commission to utilize in processing the pending LEO applications:

1. The Commission Should Examine and Authorize the Pending LEO Applications Based on the Existing RDSS Multiple Entry Policy.

The use of the existing RDSS rules will allow the Commission to promptly consider the pending LEO applications

and insure that the public receives the benefits of the proposed service in an expeditious fashion. There is no reason that the Commission now needs to revisit the underlying RDSS policies. As indicated above, these policies are best equipped to deal with new emerging technologies and services.

The Commission should initiate a parallel rulemaking proceeding as a means of promptly resolving any technical conflicts between applicants and to make any minor adjustments to the Commission's rules that may be needed to accommodate the proposed LEO systems. The Commission should not, however, use the rulemaking proceeding to establish the concept of baseline parameters for low earth orbit systems in the RDSS bands related to specific spacecraft design parameters given the diversity of satellite designs proposed in the pending applications which claim they are compatible with multiple entry.^{12/} Rather, the basic technical criteria sharing requirements in the rules should be reviewed for applicability to LEO systems,^{13/} and implemented through the current

^{12/} However, CONSTELLATION urges the immediate advance publication of one or more generic LEO systems in the RDSS bands that cover the pending applications in order to protect United States interests in these bands prior to the 1992 WARC.

^{13/} Such criteria should be expressed in terms of EIRP density or power flux density criteria rather than specific modulation or multiple access techniques. For example, CONSTELLATION does not believe that code division multiple access is the only way to achieve multiple entry.

requirement for coordination among licensees. Consistent with such a coordination requirement to avoid inter-system interference, licensees should be allowed to modify their system design to meet service requirements without being held to arbitrary baseline design parameters.

2. Each Application Should be Examined for Completeness by Providing a Meaningful Response to All Questions in Appendix B.

CONSTELLATION does not believe that there is any reason to impose a "letter perfect standard" on the pending LEO system applications, and that a "substantially complete" standard is best suited for new applications in the RDSS bands where technical diversity and innovation should be encouraged. However, the Commission should carefully review all of the applications and require each applicant to amend its application to provide the same minimum level of information as required by the Commission's rules.^{14/}

3. All Applications Should be Dismissed that do not Provide Real Radiodetermination Satellite Services.

This proceeding should not be used as a subterfuge to eliminate the radiodetermination satellite service. As

^{14/} Previously, the required information was specified in Appendix B of Satellite Application Procedures, 93 FCC 2d 1260 (1983). Presumably, the recently adopted Section 25.114 supercedes the "Appendix B" requirements.

indicated above, there continues to be a strong public demand for position determination services, and all of the non-geostationary satellite systems propose radiodetermination services. Consequently, there is no need to change the requirement that systems operating in the RDSS bands provide true position determination services. However, it should be recognized that LEO systems allow the provision of two-way voice services, and as a result the previously limited ancillary data messaging capabilities of GEO RDSS systems can be expanded dramatically to include two-way voice messaging over LEO systems.

4. The Commission Should Grant Each Application Based Only on the Applicant's Financial Preparedness to Assume the Costs and Liabilities of Constructing and Launching a System and Operating It For One Year.

It is neither necessary nor desirable for the Commission to require any applicant to have in hand all the funds necessary to build its proposed system prior to the grant of its application. It is highly unlikely that any meaningful iron-clad commitments could be provided at this time. This is just as applicable to the \$287 million required to implement the ARIES system as it is to the \$3.7 billion required to implement the Iridium system. All the pending applicants are likely to seek other equity partners to share in the risk and economic burden associated with these types of satellite

systems.^{15/} In light of the high costs and high risks associated with LEO systems, the Commission must continue to allow the pending LEO applicants to obtain financing for their systems in stages.

5. The Commission Should only Grant
Waiver Requests that are Consistent
with Existing RDSS Policies.

CONSTELLATION believes that the Commission should not use waivers to change the current Commission licensing policies in the RDSS bands. These policies do not preclude LEO RDSS systems, and the pending LEO applications allow the Commission to re-invigorate RDSS by approving multiple LEO systems to operate in the RDSS bands on a competitive basis to provide radiodetermination service, and two-way voice and data services. Waivers should not be granted that would undercut such multiple entry. For example, a waiver of Section 25.202(a)(2) to permit bi-directional use of the

^{15/} The AMSC consortium experience demonstrates the need for phased investment commitments in establishing a new satellite system.

1610-1626.5 MHz band should not be granted if such spectrum use does not permit multiple entry by LEO systems.

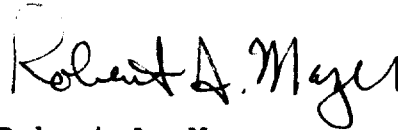
Although the parallel rulemaking and coordination among applicants may ultimately remove any need for waivers, LEO applicants may nevertheless find a need to request technical waivers to enable their LEO RDSS systems to be more economically viable and therefore insure that service is provided to the consumer at the lowest possible cost and in the most expeditious timeframe possible. For example, requests for waivers of Section 25.392(f) of the Commission Rules, 47 C.F.R. § 25.392(f), to allow non-spread spectrum use or waivers to exceed international frequency sharing criteria should be granted if the result facilitates multiple entry.^{16/}

^{16/} In this regard, CONSTELLATION notes that the capacity of satellite systems in the 2483.5 - 2500 MHz downlink band is limited by the current power flux density limit imposed by the international Radio Regulations. While these regulations may not have imposed a severe limitation on data services provided by GSO RDSS systems, it may severely limit voice messaging by LEO systems. For this reason, CONSTELLATION supports a general increase in power flux density limits in the S-band down link, and/or an increase in the bandwidth allocated to RDSS downlinks in the 2450-2500 MHz band, in order to increase the capacity of LEO systems in the RDSS bands. CONSTELLATION urges the Commission to take the needs of the new LEO applications in the RDSS bands into account while developing its proposals and positions at the 1992 WARC.

D. CONCLUSION.

For the foregoing reasons, Constellation Communications, Inc. requests that the Commission promptly initiate a parallel rulemaking proceeding to reaffirm the applicability of the Commission's current RDSS licensing policies to the pending LEO applications in the RDSS bands and to resolve any technical conflicts among those pending applications in order for the Commission to expeditiously proceed with licensing the proposed low earth orbit systems in the RDSS bands.

Respectfully submitted,



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Dated: October 16, 1991

CERTIFICATE OF SERVICE

I Robert A. Mazer hereby certify that a copy of the foregoing comments of Constellation Communications, Inc. were sent by first class United States mail, postage prepaid, this 16th day of October, 1991, to the following:

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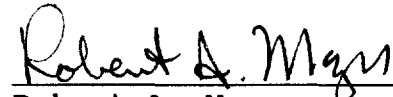
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